

## Rancang campur high strength self compacting concrete (HSSCC) dengan menggunakan adva superplasticizer = Mix design of high strength self compacting concrete (HSSCC) using adva superplasticizer

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### Abstrak

Self Compacting Concrete (SCC) memberikan solusi baru dalam dunia teknologi beton saat ini, karena tidak memerlukan vibrator untuk pemadatannya. Self Compacting Concrete telah digunakan dan dikembangkan di luar negeri, begitu juga di Indonesia sudah ada proyek - proyek pembangunan gedung-gedung bertingkat maupun jembatan yang menggunakan Self Compacting Concrete. Self Compacting Concrete (SCC) adalah beton yang mampu memadat dengan beratnya sendiri, tanpa diperlukan peralatan pemadatan beton. Self Compacting Concrete merupakan perkembangan teknologi dalam pekerjaan beton, baik terhadap pelaksanaan teknis maupun kualitas jangka panjang beton yaitu performance dan durabilitinya. Faktor penting pada SCC ini adalah workability yang tinggi, yang dapat dicapai dengan memanfaatkan perkembangan teknologi material beton yaitu admixture superplasticizer.

Dalam penelitian ini digunakan admixture (Adva superplasticizer) untuk mengetahui tingkat kelecakan pada beton Self Compacting Concrete dengan water ratio yang rendah mampu untuk mempertahankan tingkat kelecakannya. Pengujian workability dilakukan dengan menggunakan alat Slump Cone, Papan Slump Flow, dan L-Shape Box. Untuk pengujian kuat tekan beton dilakukan pada umur 1, 3, 7, 14 dan 28 hari, pengujian kuat geser beton dilakukan pada umur 3,7 dan 28 hari, pengujian kuat lentur beton dilakukan pada umur 28 hari. Pada pengujian kuat tekan diutamakan untuk umur 1 hari untuk kuat tekan awal dan 28 hari untuk kuat tekan akhir dari beton. Data yang digunakan adalah data kuantitatif dari kegiatan laboratorium.

Hasil penelitian diukur dalam Workability Slump, Slump flow, waktu ikat, kuat tekan, kuat geser dan kuat lentur dari Self Compacting Concrete. Dari rangkaian kegiatan ini, dapat menambah wawasan tentang Self Compacting Concrete khususnya Workability SCC dan Kuat Tekan dari Self Compacting Concrete dalam kegiatan kualitas bangunan konstruksi.

Kata Kunci : Adva Superplasticizer, Performance, Durability, Workability Slump Cone, Slump Flow, L-Shape Box, Kuat tekan, Kuat geser dan Kuat lentur.

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<i>Self Compacting Concrete (SCC) gives a new solution in a concrete technology lately, since it does not need a vibrator for compacting. Self Compacting Concrete has been used and developed abroad, and also in Indonesia. There are some high rise building and bridge projects using Self Compacting Concrete. Self Compacting Concrete is a concrete which can compact itself by taking advantage of its self weight, without using any compacting tools. Self Compacting Concrete is a technology innovation in concrete work, both in technical practice and long term concrete quality such as performance and durability. The important factor of SCC is high workability, which can be reached by taking granted of the technology innovation of the concrete material, which is admixture superplasticizer.

In this experiment, admixture (Adva superplasticizer) is used to find the workability level in Self Compacting Concrete with a low water ratio to endure its workability. The workability testing is done by using slump cone, slum flow board, and L-shaped box. For the concrete compressive strength testing, it is done when the concrete reaches its age, which are 1, 3, 7, 14, and 28 days. Then, the concrete shear strength testing is taken at the age 3, 7, and 28 days. Besides, the concrete flexural strength testing is performed at the age of 28 days. In the compressive strength testing, it is important to take the initial compressive strength at the age of 1 day, and final compressive strength at the age of 28 days. The data used is a quantitative data from the laboratory work.

The experiment results measured in slump workability, slump flow, setting time, compressive strength, shear strength, and flexural strength of the Self Compacting Concrete. From the series of several activities done, we expect that those can broaden our knowledge about Self Compacting Concrete especially in SCC Workability and compressive strength in the quality of construction industry.

Keywords : Adva Super-plasticizer, Performance, Durability, Workability, Slump Cone, Slump Flow , L-shaped box, Compressive strength, Shear strength, and Flexural strength.</i>